

## **APPENDIX E**

### **CONSTRUCTION MITIGATION AND RESTORATION PLAN**



**North Baja Pipeline, LLC**

**NORTH BAJA PIPELINE EXPANSION PROJECT**

**Appendix E**  
**Construction Mitigation**  
**and Restoration Plan**

Prepared by



**TETRA TECH EC, INC.**

1940 E. Deere Ave. Suite 200  
Santa Ana, CA 92705

**May 2006**

## TABLE OF CONTENTS

1.0	INTRODUCTION .....	E-1
2.0	DESERT RESTORATION PLAN .....	E-2
2.1	NORTH BAJA REVEGETATION AND WEED MONITORING PROGRAM .....	E-2
2.2	RESTORATION GOALS .....	E-3
2.3	PLAN IMPLEMENTATION .....	E-4
2.3.1	Preconstruction Phase.....	E-4
2.3.2	Construction Phase – Clearing .....	E-6
2.3.3	Construction Phase – Cleanup.....	E-9
2.4	POSTCONSTRUCTION .....	E-9
2.5	SURVEY, MONITORING, AND REPORTING .....	E-9
3.0	UPLAND EROSION AND SEDIMENT CONTROL (FERC UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN, MODIFIED) .....	E-11
3.1	APPLICABILITY (FERC PLAN SECTION I., MODIFIED).....	E-11
3.2	SUPERVISION AND INSPECTION .....	E-11
3.2.1	Environmental Inspection (FERC Plan Section II.A., Modified).....	E-11
3.2.2	Responsibilities of Environmental Inspectors (FERC Plan Section II.B., Modified).....	E-11
3.3	PRECONSTRUCTION PLANNING .....	E-13
3.3.1	Construction Work Areas (FERC Plan Section III.A., Modified).....	E-13
3.3.2	Drain Tile and Irrigation Systems (FERC Plan Section III.B., Modified) .....	E-13
3.3.3	Grazing Deferment (FERC Plan Section III.C., Modified).....	E-13
3.3.4	Road Crossings and Access Points (FERC Plan Section III.D.) .....	E-13
3.3.5	Disposal Planning (FERC Plan Section III.E.).....	E-13
3.3.6	Agency Coordination (FERC Plan Section III.F., Modified).....	E-13
3.3.7	Stormwater Pollution Prevention Plan (FERC Plan Section III.G.).....	E-14
3.4	INSTALLATION .....	E-14
3.4.1	Approved Areas of Disturbance (FERC Plan Section IV.A.) .....	E-14
3.4.2	Topsoil Segregation (FERC Plan Section IV.B., Modified) .....	E-15
3.4.3	Drain Tiles (FERC Plan Section IV.C., Modified).....	E-15
3.4.4	Irrigation (FERC Plan Section IV.D.) .....	E-16
3.4.5	Road Crossings and Access Points (FERC Plan Section IV.E., Modified).....	E-16
3.4.6	Temporary Erosion Control (FERC Plan Section IV.F., Modified).....	E-16
3.5	RESTORATION .....	E-16
3.5.1	Cleanup (FERC Plan Section V.A., Modified) .....	E-16
3.5.2	Permanent Erosion Control Devices (FERC Plan Section V.B.) .....	E-17
3.5.3	Soil Compaction Mitigation (FERC Plan Section V.C., Modified) .....	E-18
3.5.4	Revegetation (FERC Plan Section V.D., Modified).....	E-19
3.6	OFF-ROAD VEHICLE CONTROL (FERC PLAN SECTION VI., MODIFIED).....	E-19
3.7	POST-CONSTRUCTION ACTIVITIES .....	E-20
3.7.1	Monitoring and Maintenance (FERC Plan Section VII.A., Modified).....	E-20
3.7.2	Reporting (FERC Plan Section VII.B., Modified) .....	E-21
4.0	WETLANDS AND WATERBODIES .....	E-22
4.1	APPLICABILITY (FERC PROCEDURES SECTION I., MODIFIED) .....	E-22
4.2	PRECONSTRUCTION FILING (FERC PROCEDURES SECTION II, MODIFIED) .	E-23

4.3	ENVIRONMENTAL INSPECTORS (FERC PROCEDURES SECTION III.) .....	E-23
4.4	PRECONSTRUCTION PLANNING .....	E-23
4.4.1	Stormwater Pollution Prevention Plan (FERC Procedures Section IV.A.) .....	E-23
4.5	WATERBODY CROSSINGS.....	E-24
4.5.1	Notification Procedures and Permits (FERC Procedures Section V.A., Modified).....	E-24
4.5.2	Installation (FERC Procedures Section V.B., Modified) .....	E-25
4.5.3	Restoration (FERC Procedures Section V.C., Modified) .....	E-27
4.5.4	Post-Construction Maintenance (FERC Procedures Section V.D., Modified)..	E-27
4.6	WETLAND CROSSINGS (FERC PROCEDURES SECTION VI, MODIFIED) .....	E-28
4.6.1	General (FERC Procedures Section VI.A., Modified) .....	E-28
4.6.2	Installation (FERC Plan Section VI.B., Modified).....	E-29
4.6.3	Restoration (FERC Plan Section VI.C., Modified) .....	E-31
4.6.4	Post-Construction Maintenance (FERC Plan Section VI.D., Modified) .....	E-31
4.7	HYDROSTATIC TESTING .....	E-31
4.7.1	Notification Procedures and Permits (FERC Plan Section VII.A.) .....	E-31
4.7.2	General (FERC Plan Section VII.B.) .....	E-32
4.7.3	Intake Source and Rate (FERC Plan Section VII.C.) .....	E-32
4.7.4	Discharge Location, Method, and Rate (FERC Plan Section VII.D., Modified).....	E-32

## LIST OF TABLES

Table E-1: Locations Where the Proposed Construction Right-of-Way Will be Reduced to Minimize Tree Clearing.....	E-5
Table E-2 Extra Workspaces Needed in Wetlands .....	E-29

## Appendix E

### Construction Mitigation and Restoration Plan

#### 1.0 INTRODUCTION

This Construction Mitigation and Restoration Plan (CM&R Plan) describes measures to be taken by North Baja Pipeline, LLC (North Baja) to protect natural resources during construction and operation of the North Baja Pipeline Expansion Project (Project). The CM&R Plan consists of three parts:

- Section 2 describes procedures that were used successfully for the A-Line construction mitigation and restoration and will be used again for the Project, including the B-Line and the IID Lateral, to preserve and restore habitat values temporarily impacted by pipeline construction in the desert environment.
- Section 3 proposes modifications to the FERC Upland Erosion Control, Revegetation, and Maintenance Plan, as updated January 2003 (FERC Plan), that are relevant to the Project area and are designed to minimize Project-related construction impacts on soils and minimize erosion.<sup>1</sup>
- Section 4 proposes modifications to the FERC's Wetland and Waterbody Construction and Mitigation Procedures, as updated January 2003 (FERC Procedures), that are relevant to the Project area and are designed to minimize Project-related disturbance to waterbodies and wetlands.<sup>2</sup>

In addition to the CM&R Plan presented here, North Baja is providing the following additional plans directly relevant to construction mitigation and restoration:

- Appendix G – Horizontal Directional Drilling Plan, which contains specific procedures to be used during the horizontal directional drilling of the Colorado River, the All-American Canal (AAC), and the East Highline Canal;
- Appendix F – Spill Prevention, Containment, And Control Plan For Hazardous Materials And Hazardous Wastes (SPCC Plan);
- Appendix P – Off-Highway Vehicle (OHV) Management Plan, which contains site-specific measures for controlling OHV route proliferation attributable to Project construction; and
- Appendix L – Dust Control Plan, which contains measures designed to minimize air pollution or wind erosion from fugitive dust attributable to construction activities.

An updated CM&R Plan will be submitted prior to construction if necessary to incorporate any additional applicable requirements of Federal, State, and local permits.

---

1 The FERC's Plan can be viewed on the FERC Internet website at <http://www.ferc.gov/industries/gas/enviro/uplndctl.pdf>.

2 The FERC's Procedures can be viewed on the FERC Internet website at <http://www.ferc.gov/industries/gas/enviro/wetland.pdf>.

## 2.0 DESERT RESTORATION PLAN

North Baja researched desert restoration techniques and produced a desert restoration plan for the original North Baja Pipeline Project. That plan provided the scientific rationale for the restoration approach, which differs from conventional methods due to the extreme aridity of the Project area. It included a literature review on natural vegetation recovery and revegetation parameters. It also provided an in-depth review of the Colorado Desert setting, including detailed descriptions of cover types.

The results of the desert restoration plan for the A-Line have been relatively rapid natural revegetation along most of the pipeline right-of-way, no spread of noxious weeds due to construction or operation of the pipeline, and limited expansion of OHV routes due to pipeline construction. These results have been documented in annual reports, filed with the FERC and other agencies, detailing the surveys conducted for weed spread and revegetation success. Annual evaluations and reports for the weed and revegetation surveys will continue through 2012 as agreed for the original North Baja Pipeline Project.

As part of the A-Line restoration plan, an experimental seeding program was instituted. That program is detailed in Attachment A of the North Baja CM&R Plan used for construction of the A-Line, and has also resulted in annual reports filed with FERC and other agencies. After 3 years of monitoring, the plots show that seeding in the desert is generally ineffective in improving the rate or extent of revegetation. A possible exception is in desert wash woodlands, where a high rate of seeding has shown a somewhat increased number of individual woodland tree species seedlings. Annual evaluations and reports for the experimental seeding Project will continue until construction of the B-line, providing an estimated 7 years of results to inform future restoration efforts in the Colorado Desert.

### 2.1 NORTH BAJA REVEGETATION AND WEED MONITORING PROGRAM

The October 2004 and March 2005 surveys conducted 26 and 32 months, respectively, after final surface restoration completion showed increased natural regeneration, both in the desert wash woodland habitat and in creosote scrub habitat, compared to off-right-of-way areas (Tetra Tech 2005). Native species of annuals and shrubs have readily recruited onto the right-of-way with each annual species increasing in occurrence within plots with each passing year. The control plots, on the other hand, generally show no increase in occurrence of each species over time.

In October 2004, native shrubs *Larrea tridentata*, *Atriplex canescens*, and *Ambrosia dumosa* were the most common plants and occurred in 30, 14, and 2 percent of the right-of-way plots, respectively. These same shrubs occurred in 23, 2, and 12 percent of the plots in March 2005. *Encelia farinosa*, a native shrub, was present in 4 percent of the plots in 2004 and increased to 14 percent in 2005. One species of tree, *Psoralea spinosa*, (smoke tree) was found within a right-of-way plot in October 2004, although other tree recruitment was noted on the right-of-way but outside of plot locations. In March 2005, both *Psoralea spinosa* and *Cercidium floridum* (blue palo verde) seedlings were found in the plots and again tree recruitment was evident along the right-of-way outside of plot locations. Tree and shrub recruitment within the right-of-way was noticeably greater within desert wash habitat compared to creosote scrub habitat.

Based on the first 3 years of survey, the right-of-way appears to be revegetating successfully, not only with annuals in season, but also with the perennial shrubs and trees that will eventually become the dominant vegetation. Revegetation success has been high for annuals this year, but also for perennials. The very harsh Colorado desert climate will probably continue to restrict cover and growth of all species.

Noxious weed species have not spread outside areas containing weeds prior to construction. From a qualitative perspective, *Brassica tournefortii* was generally present in equal numbers in disturbed right-of-way areas and in adjacent, less-disturbed desert pavement areas; however, no *B. tournefortii* was observed within any sample plots during October 2004, which is due to its spring flowering followed by summer and fall die off. *Brassica tournefortii* was present in 33 percent of the plots in March 2005, although its distribution was patchy and not concentrated in any particular areas. The right-of-way is also experiencing minor recruitment of *Tamarix ramosissima*, although this weed species has constantly remained below 9 percent abundance among all sample plots since post-construction monitoring and is present only in areas of prior tamarisk infestation.

The use of the sheepfoot to create mini-catchment areas appears to encourage the sprouting of annuals in most areas, especially when the mini-catchments are located in low-lying or wash areas; however, many plots lacking topographical relief or located in desert pavement do not show a clear difference between regeneration inside and outside of the mini-catchments.

Annuals typically dominate numerically and by percent cover, especially during the prolific bloom observed in March 2005, which is attributed to extremely high precipitation. Many seedling native shrubs have also recruited and are steadily increasing in percent cover. It should also be noted that in areas with desert pavement there was noticeably more recruitment of annuals within the right-of-way compared to intact desert pavement sites located off the right-of-way. In addition, off-right-of-way areas appeared to follow the same pattern of higher shrub recruitment in wash areas than in creosote bush scrub and desert pavement habitats. Last, although not quantified, shrub recruitment within the right-of-way, but outside sample plot areas was generally higher than off-right-of-way areas, indicating that native shrub seedlings recruit more readily to recently impacted areas.

## 2.2 RESTORATION GOALS

Typical of arid habitats, the natural revegetation processes in the Colorado Desert are relatively protracted. Impacts on the landscape take long periods to restore to their original forms. In addition to the intrinsic value of the desert landscape, the Colorado Desert supports a number of special-status plants and animals. The goals of this plan will be to:

- Avoid impacts where practical;
- Where impacts are unavoidable, minimize impacts; and
- Focus on site preparation to facilitate natural processes of revegetation.

North Baja proposes to continue its adaptive management approach that incorporates many different “tools” that may be used on a site-specific basis. These tools include:

- Emphasize final site preparation to encourage natural revegetation;

- Avoid (i.e., preserve), where practical, mature native trees;
- Stipulate a maximum construction corridor width;
- Reserve topsoil and plant materials from the right-of-way before grading, and respread over the right-of-way after construction is complete;
- Grubbing and crushing vegetation where possible along the construction corridor, rather than blading;
- Salvaging large woody debris to later be spread on the restored corridor to serve a dual purpose: blocking OHV access to the pipeline corridor and serve as a mulch and source of shade to nurse plant germination and growth;
- Imprint the restored right-of-way to provide indentations to catch seed and water;
- Implement best management practices to protect the soil;
- Apply restoration methods that have been shown to work in the desert environment;
- Prevent the construction- or operation-related spread of noxious weeds or other undesirable species;
- Apply methods to discourage unauthorized OHV use of the pipeline right-of-way, including construction of berms, placement of natural materials, and transplanting of cactus and ocotillo; and
- Avoid removing desert trees where practical by reducing the width of the right-of-way.

## 2.3 PLAN IMPLEMENTATION

### 2.3.1 *Preconstruction Phase*

#### 2.3.1.1 *Identification of Native Tree Areas*

Mature, native trees are particularly valuable and important in desert ecosystems. Target native plants include the tree forms of the following species: desert willow, cat's claw acacia, Palo Verde, desert ironwood, mesquite, smoke tree, and ocotillo. A field survey was conducted in October 2001 to identify areas of native tree concentrations where reducing right-of-way width would preserve significant quantities of trees. Subsequent surveys in 2005 of the IID Lateral revealed no desert washes and no microphyll woodlands on this route. Therefore, the microphyll woodland area identification conducted for the A-Line is the only needed guide to locations where B-Line right-of-way width reductions will occur.

Areas that can be reasonably preserved from impact are those designated as the passing lanes. While work can proceed on the pipeline without the use of the passing lanes, it is much slower and more expensive and is not feasible for extended distances. Topsoil will have to be hauled off the right-of-way and stored, along with the woody vegetative debris, then returned to the area and respread. Spoil from the trenching operation will be spread along the working area, then replaced in the trench after the padding operation is complete.

During in-field surveys of the proposed neck-down areas, it was determined that measuring a percent crown cover for the passing lane along the entire route provided an accurate description of trees lost (or



preserved) in the area and the relative value of the multi-stemmed desert wash woodland species. Given that desert vegetation is sparse at best, North Baja determined that where at least 20 percent crown cover was found in the proposed 30-foot-wide area, construction corridor width should be limited. Table E-1 shows the location and extent of the areas where the right-of-way width was planned for reduction or “necking down” for the A-Line. In several locations, neck-down areas were modified in the field by variances approved by the agencies prior to construction. In these areas, the A-Line was restricted to 50-foot width. For B-Line construction, right-of-way width will be reduced 25 feet from the standard 105 feet to 80 feet in the same locations that were necked down during A-Line construction.

<b>Table E-1: Locations Where the Proposed Construction Right-of-Way Will be Reduced to Minimize Tree Clearing</b>				
<b>Starting Milepost</b>	<b>Length (feet)</b>	<b>Crown Cover (%)</b>	<b>A-Line Acres Disturbed</b>	<b>B-Line Additional Acres Disturbed</b>
B-Line — 105 feet to 80 feet				
16.9	345	25	0.4	0.2
17.9	270	31	0.3	0.2
20.0	700	30	0.8	0.5
22.3	480	20	0.6	0.3
22.5	250	43	0.3	0.2
22.6	1,000	33	1.1	0.7
22.8	180	42	0.2	0.1
23.3	340	50	0.4	0.2
23.4	250	63	0.3	0.2
23.5	590	41	0.7	0.4
25.8	850	35	1.0	0.6
34.5	860	25	1.0	0.6
45.1	500	48	0.6	0.3
51.1	1,800	30	2.1	1.2
51.7	1,100	30	1.3	0.8
64.5	500	31	0.6	0.3
<b>Total</b>	<b>10,015</b>		<b>11.7</b>	<b>6.8</b>

Without right-of-way reduction, the acreage of desert wash woodland represented in these areas equals 24.1 acres. The proposed narrowing would preserve 5.6 acres and leave 18.5 acres still impacted. The remaining acres of desert wash woodland are in areas so scattered and with so few trees that the impact of right-of-way reduction would be small compared to the significant increase in cost. The right-of-way width reduction in these areas would preserve the densest, and therefore most productive, areas of desert wash woodland within the originally proposed footprint of the pipeline construction.

### *2.3.1.2 Construction Work Area Restrictions*

Measures will be taken to minimize permanent and temporary construction disturbances to facilitate subsequent restoration. Construction will stay within designated construction work areas.

Designated Construction Zone – Project-related vehicle traffic, construction activity, and equipment storage will be restricted to established roads, designated access roads, the working strip, storage areas,

staging and parking areas, and other designated Project areas. This restriction includes the placement of portable toilet facilities.

Staking – The outside boundaries of the construction corridor will be staked prior to construction with approximately 24-inch-tall flagged or painted stakes at a maximum interval of 300 feet.

Storage, Laydown, and Spoil Disposal Areas – To minimize permanent and temporary construction disturbances, storage facilities will be located at sites that have non-native cover or have been previously disturbed. Parking, storage, and other areas will be marked by flagged lath stakes about 24 inches above ground and placed in line of sight with a maximum spacing of 300 feet.

### *2.3.1.3 OHV Route Proliferation Limitation*

Please see Appendix P, OHV Management Plan for details of the OHV route management plan.

### *2.3.1.4 Salvage Cactus, Ocotillo, and Other Woody Vegetation*

Immediately prior to ground-disturbing activities at designated crossing areas defined in Appendix P, identified specimens of the larger species of cactus (primarily *Opuntia*), ocotillo (*Fouquieria splendens*), and other woody vegetation will be salvaged from the nearby right-of-way, stored, and then replanted after pipeline installation. These specimens will be used for OHV route control.

## *2.3.2 Construction Phase – Clearing*

### *2.3.2.1 Non-Native Cover Types*

For tamarisk scrub (MPs 29-33, B-Line only), restoration objectives during the initial ground clearance and right-of-way preparation will be:

Prevent Spread of Noxious Weeds – Soil and plant materials from non-native areas will be disposed of in non-native areas only. That is, no disposal or transfer of excess spoils or cleared-and-grubbed plant materials into native cover type areas will be allowed. All equipment will be washed and inspected prior to use on the right-of-way, including in tamarisk areas. See section on washing equipment in Native Habitat Areas, below.

Disposal methods for tamarisk removed during the clearing of portions of large monotypic tamarisk stands include hauling or burning on site. If burning is the selected measure, North Baja will apply for the appropriate burning permits. If hauling is selected, loads will be covered to prevent windborne dispersal of propagules. After the removal of all tamarisk from the right-of-way, no further equipment or truck washing will be needed or utilized.

Trucks and equipment used to remove tamarisk will be washed prior to their use elsewhere on the right-of-way. All washing will be conducted at commercial truck washes in nearby communities, and trucks and equipment will be inspected prior to use elsewhere on the right-of-way.

Restore Hydrology – Where hydrologic features are present, the original surface hydrology will be restored (see Section 4).

### 2.3.2.2 Native Cover Types

For the three native cover types, restoration objectives during the initial ground clearance and right-of-way preparation are:

Prevent Spread of Noxious Weeds – Disposal of soil and plant materials from non-native areas will not be allowed in native areas. That is, no disposal or transfer for excess spoils or plant materials from non-native areas will be allowed into native cover type areas.

The construction right-of-way is surveyed annually for plants listed as invasive exotics by the State of California, as well as other species on the BLM National List of Invasive Weed Species of Concern, as a right-of-way grant condition for the A-Line. This survey has shown no spread of weeds since construction of the A-Line. Based on weed surveys conducted for the A-Line and follow-up surveys conducted annually thereafter, the only infested area is the tamarisk infestation from MPs 29 through 33 on the B-Line. While other non-native species are present on the right-of-way, including African mustard and *Schismus*, they are ubiquitous in the wider desert area, including but not limited to the present right-of-way and the proposed construction area, and equipment washing will not impact their distribution. Weed control will, therefore, focus only on tamarisk.

Once the construction corridor has been cleared and graded, vehicles can travel the right-of-way through non-native areas without significant risk of spreading noxious plant material.

Non-native tamarisk trees will be removed from the right-of-way in native areas to discourage colonization of the right-of-way after construction. If possible, removal should occur prior to the set of seeds to reduce the risk of dispersal. Tamarisk small enough to be pulled out by hand will be removed when found. Larger specimens will be mechanically removed during Project construction. All identified tamarisk will be removed by the end of Project construction. Tamarisk will be disposed of in a manner that prevents the spread of seed. The preferred methods of disposal of tamarisk found in relatively isolated locations include hauling off or burning on site. Methods for each area will be specified in the Plan of Development (POD). Where burning is the selected measure, North Baja will apply for the appropriate burning permits. If hauling is selected, loads will be covered to prevent windborne dispersal of propagules.

Weed Wash Stations: No temporary weed wash stations were employed during construction of the A-Line. No temporary weed wash stations are proposed for the construction of the Project. However, weed control continues to be an important concern for North Baja, and the following weed-control measures will apply.

All construction equipment must be washed prior to entering the construction area for the first time for any part of the Project to prevent the spread of invasive weeds from other areas. The initial washing will be conducted at commercial truck washes in nearby communities, including Blythe, El Centro, or Yuma, and use of clean equipment will be a contractual condition for the construction contractor and all subcontractors. The Environmental Inspector will ensure that all trucks and equipment that will be utilized on an unpaved portion of the construction right-of-way have been washed prior to first use, and that there is no dirt or plant material clinging to the wheels, tracks, or understructure of any truck or equipment.

Preserve Native Trees – Impacts on native trees concentrations will be minimized in the areas specified in Table E-1, above, by limiting the construction right-of-way width to 80 feet.

Restrict Area of Disturbance – The width of the right-of-way will be restricted to minimize impacts on native areas. The standard right-of-way width will be 105 feet. In constrained areas with steep slopes, the width may be widened to accommodate equipment for limited stretches. Conversely, in specified areas, above, the right-of-way width will be restricted to 80 feet for limited stretches to avoid trees. Only the working strip, public roads, or approved routes of travel will be used. Off-road traffic outside designated areas will be prohibited to protect adjacent native habitat. All Project vehicles will turn around only within approved work areas or on designated access roads.

Preservation of the Seed Bank – The upper two to eight inches of topsoil from the portions of the right-of-way requiring grading will be removed first (see also Section 3.4.2, below). Topsoil will be stockpiled separately from the spoil pile. Topsoil will be temporarily stockpiled in windrows, which will be flagged to clearly identify them. These stockpiles of topsoil will be carefully segregated from the subsoil. Topsoil will be stockpiled under normal circumstances from 2 to 4 weeks, but not longer than 4 months.

The topsoil will be evenly respread over the graded area during cleanup. Reserving and resspreading topsoil is designed to conserve the seed bank, aiding in natural revegetation. Imprinting will be used to provide micro-catchment areas for water retention and seed germination. Imprinting may be accomplished through the use of a “sheep’s-foot” roller or other methods.

Encourage Regeneration of Woody Plants – Areas that must be scraped or graded will be restricted to that necessary to create a safe working area for construction. Naturally level areas, for example, may require no grading. In areas requiring no grading, grubbing of the right-of-way in native habitat areas will leave the underground roots of woody plants intact. That is, the grubbing will skim the surface of the ground to crush or slice off the aboveground portions of vegetation, leaving the root crowns intact. This will allow for rapid regeneration of woody plant species.

Native plant material that has been grubbed from the right-of-way will be respread on the right-of-way after pipeline installation, providing a mulch to trap seeds, shade seedlings, and conserve water for the revegetation of the right-of-way. In areas where topsoil is removed, the plant material will be respread with the topsoil.

Restore Hydrology – Where hydrologic features are present, the original surface hydrology will be restored. See Section 4, below.

Prevent Impacts on Migratory Birds – North Baja plans to conduct construction in native habitats outside the breeding season for migratory birds. If construction activities are necessary during bird breeding season, vegetation that could provide nesting substrate will be removed from the right-of-way before breeding season, thus eliminating the possibility that birds could nest on the right-of-way. Qualified biologists will conduct pre-construction surveys to confirm the absence of nesting birds before construction begins.

If, in spite of vegetation removal, nesting birds are found on the construction right-of-way, the nest will not be removed until fledging has occurred or unless authorized after consultation with USFWS, CDFG, and, if the nest is located on Federal lands, the Federal land management agency.

### **2.3.3 Construction Phase – Cleanup**

Once the pipeline has been installed and the pipeline trench backfilled, the right-of-way will be recontoured to approximate original contours. Recontouring to natural lines and grade will be accomplished without disruption to adjacent undisturbed habitat.

After topsoil and native plant material have been respread over the graded areas at the completion of construction, these areas will be imprinted with a sheep's-foot or similar device. The indentations created by the imprinter catch seed and water, aiding in the natural revegetation of the site. Native plant material that had been removed from the right-of-way will provide a mulch to trap seeds, shade seedlings, and conserve water for the revegetation of the right-of-way.

## **2.4 POSTCONSTRUCTION**

Postconstruction monitoring and maintenance of the pipeline right-of-way will be according to the overall Project plan (see Sections 2.5 and 3.7, below). Of particular relevance will be monitoring of erosion and repairs to maintain the integrity of the line.

## **2.5 SURVEY, MONITORING, AND REPORTING**

Surveys will be conducted for non-native invasive plant species after construction is complete. They will be compared to the preconstruction survey conducted to determine locations of weed infestations attributable to this Project, including the B-Line, Arrowhead Extension, and IID Lateral. North Baja will be responsible for weed survey and control two times a year for the first 2 years, then once a year thereafter as part of its routine maintenance and operation of the pipeline. The first survey after construction will be conducted after rainfall and will consist of walking the entire line, looking for new weed infestations. Thereafter, surveys may be conducted aerially with spot ground checks in areas of infestations. Weed control will be done at the same time as the survey, since tamarisk, the most likely invader, can be most efficiently controlled by hand-pulling, bagging, and disposing of in approved sites.

The entire line will also be monitored for success of restoration of desert vegetation in addition to the routine monitoring specified in Section 3.7, below. Postconstruction monitoring will be conducted annually in areas of desert vegetation disturbed by construction through 2012. Results of the monitoring will be provided in full reports to the FERC, BLM, CSLC, BOR, FWS, and CDFG as originally agreed for the A-Line construction.

If, after 5 years of monitoring where rainfalls have been at least average for the area, revegetation of the construction work area in native desert habitats is determined to be unsuccessful, North Baja will consult with FERC, BLM, CSLC, BOR, FWS, and CDFG and develop a remedial restoration plan for desert revegetation. The remedial plan will be based upon assessments of the extent of the failure, the reasons for the failure, and conditions on the right-of-way, such as whether a viable seed source still exists in the soil. It is very unlikely that a remedial plan would include irrigation, which is impracticable in most settings along the pipeline. Options may include selective re-scarification of the surface, with or without supplemental seeding, or allowing more time for natural regeneration to occur. For each year that rainfall amounts have been less than 80 percent of average after 1 drought year subsequent to construction, an

additional year shall be granted beyond the initial 5 years for native vegetation to establish before North Baja would be obliged to examine remedial measures.

---

### **3.0 UPLAND EROSION AND SEDIMENT CONTROL (FERC UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN, MODIFIED)**

#### **3.1 APPLICABILITY (FERC PLAN SECTION I., MODIFIED)**

As outlined below, North Baja is proposing modifications to the FERC Plan. This section will apply to all nonwetland areas of the Project. Wetland and waterbody systems are addressed in Section 4.

Deviations that involve measures different from those contained in this section of the CM&R Plan will only be permitted as certificated by the Commission or by written approval of the Director of the Office of Energy Projects (OEP), or his/her designee, unless specifically required in writing by another Federal, State, or Native American land management agency for the portion of the Project on its land. North Baja will file other agency requirements with the Secretary of the Commission (Secretary) before construction.

#### **3.2 SUPERVISION AND INSPECTION**

##### ***3.2.1 Environmental Inspection (FERC Plan Section II.A., Modified)***

1. At least two Environmental Inspectors are required for each construction spread during active construction or restoration. The number and experience of Environmental Inspectors assigned to each construction spread should be appropriate for the length of the construction spread and the number/significance of resources affected.
2. Environmental Inspectors shall have peer status with all other activity inspectors.
3. Environmental Inspectors shall have the authority to stop activities that violate the environmental conditions of the FERC Certificate, State and Federal environmental permit conditions or landowner requirements and to order corrective action.

##### ***3.2.2 Responsibilities of Environmental Inspectors (FERC Plan Section II.B., Modified)***

At a minimum, the Environmental Inspector(s) shall be responsible for:

1. Ensuring compliance with the requirements of this CM&R Plan, the environmental conditions of the FERC Certificate authorization, the mitigation measures proposed by North Baja in its application submitted to FERC, other environmental permits and approvals, and environmental requirements in landowner easement agreements;
2. Identifying, documenting, and overseeing corrective actions, as necessary to bring an activity back into compliance;

3. Verifying that the limits of authorized construction work areas and locations of access roads are properly marked before clearing;
4. Verifying the location of signs and highly visible flagging marking the boundaries of sensitive resource areas, waterbodies, wetlands, or areas with special requirements along the construction work area;
5. Identifying erosion/sediment control and soil stabilization needs in all areas;
6. Locating dewatering structures and slope breakers to ensure they will not direct water into known cultural resources sites or locations of sensitive species;
7. Verifying that trench dewatering activities do not result in the deposition of sand, silt, and/or sediment near the point of discharge into a wetland or waterbody or cause scouring as a result of excessive water volumes and/or pump velocities. If such deposition or scouring is occurring, the dewatering activity shall be stopped and the design of the discharge shall be changed to prevent recurrence of the relevant problem;
8. Testing subsoil and topsoil in agricultural and residential areas to measure compaction and determine the need for corrective action;
9. Advising the Chief Inspector when conditions (such as wet weather) make it advisable to restrict construction activities in agricultural areas;
10. Ensuring restoration of contours and topsoil;
11. Verifying that the soils imported for agricultural or residential use have been certified as free of noxious weeds and soil pests;
12. Determining the need for and ensuring that temporary erosion controls are properly installed as necessary to prevent sediment flow into Rannells Drain and the two unnamed canals along the Arrowhead Extension and/or as required by regulatory agencies;
13. Inspecting and ensuring the maintenance of temporary erosion control measures at Rannells Drain and the two unnamed canals along the Arrowhead Extension at least:
  - a. on a daily basis in areas of active construction or equipment operation;
  - b. on a weekly basis in areas with no construction or equipment operation; and
  - c. within 24 hours of each 0.5 inch of rainfall;
14. Ensuring the repair of all ineffective temporary erosion control measures at Rannells Drain and the two unnamed canals along the Arrowhead Extension within 24 hours of identification;
15. Keeping records of compliance with the environmental conditions of the FERC Certificate, and the mitigation measures proposed by North Baja in the application submitted to the FERC and other Federal and State environmental permits during active construction and restoration; and



16. Identifying areas that should be given special attention to ensure stabilization and restoration after the construction phase. Implementation of this program may be transferred to the company's operating section upon completion of construction and restoration activities.

### **3.3 PRECONSTRUCTION PLANNING**

North Baja will complete the following before construction:

#### ***3.3.1 Construction Work Areas (FERC Plan Section III.A., Modified)***

North Baja will identify all construction work areas (e.g. construction rights-of-way, extra workspace areas, pipe storage and contractor yards, borrow and disposal areas, access roads, etc.) that are needed for safe construction. North Baja has ensured that appropriate cultural resources and biological surveys were conducted and that the extent of those surveys was sufficient to accommodate possible future need for activities outside the certificated work areas.

#### ***3.3.2 Drain Tile and Irrigation Systems (FERC Plan Section III.B., Modified)***

1. Attempt to locate existing irrigation systems.
2. Develop procedures for maintaining irrigation systems during construction, and repairing irrigation systems after construction.

#### ***3.3.3 Grazing Deferment (FERC Plan Section III.C., Modified)***

There are no grazing areas that would require grazing deferments along the Project. Therefore, this section does not apply.

#### ***3.3.4 Road Crossings and Access Points (FERC Plan Section III.D.)***

North Baja has planned for safe and accessible conditions at all roadway crossings and access points during construction and restoration.

#### ***3.3.5 Disposal Planning (FERC Plan Section III.E.)***

North Baja has determined methods and locations for the disposal of brush and excess rock. Off-site disposal in other than commercially operated disposal locations is subject to compliance with all applicable survey, landowner permission, and mitigation requirements.

#### ***3.3.6 Agency Coordination (FERC Plan Section III.F., Modified)***

North Baja will coordinate with the appropriate local, State, and Federal agencies as outlined in this section and in the Certificate.

1. Obtain written recommendations from the local soil conservation authorities or land management agencies regarding permanent erosion control. North Baja has completed consultation on desert restoration techniques and incorporates the results in Section 2, above. Incorporate all agreed-upon recommendations into the CM&R Plan, and on alignment sheets, if required (FERC Plan Section III.F.1., modified).
2. Develop specific procedures in coordination with the appropriate agency to prevent the introduction or spread of noxious weeds and soil pests resulting from construction and restoration activities. At a minimum, North Baja will wash all equipment transferred from Arizona to California at the washing station in Ehrenberg to ensure that equipment arriving on site in California is clean and will wash down clearing and grading equipment before moving equipment from non-native into native vegetation areas as outlined in Section 2 of this CM&R Plan (FERC Plan Section III.F.2., modified).

### ***3.3.7 Stormwater Pollution Prevention Plan (FERC Plan Section III.G., Modified)***

North Baja will make available on each construction spread the Stormwater Pollution Prevention Plans (SWPPPs) that would be prepared in accordance with the requirements of the Arizona Department of Environmental Quality, Division of Water Quality and the California Regional Water Quality Control Board, Colorado River Basin Region.

## **3.4 INSTALLATION**

### ***3.4.1 Approved Areas of Disturbance (FERC Plan Section IV.A.)***

1. Project-related ground disturbance shall be limited to the construction right-of-way, extra workspace areas, pipe storage yards, borrow and disposal areas, access roads, and other areas approved in the certificate. Any Project-related ground-disturbing activities outside these certificated areas, except those needed to comply with the Plan and Procedures (e.g., slope breakers, energy-dissipating devices, dewatering structures, drain tile system repairs) will require prior Director approval. All construction or restoration activities outside of the certificated areas are subject to all applicable survey and mitigation requirements.
2. The construction right-of-way width shall not exceed that described in North Baja's FERC application unless otherwise modified by a certificate condition. However, in limited non-wetland areas, this construction right-of-way width may be expanded by up to 25 feet without Director approval to accommodate full construction right-of-way topsoil segregation and to ensure safe construction where topographic conditions, such as side-slopes, require it. Twenty-five feet of extra construction right-of-way width may also be used in limited, non-wetland or non-forested areas for truck turnaround where no reasonable alternative access exists.

Project use of these additional limited areas is subject to landowner approval and compliance with all applicable survey and mitigation requirements. When such additional areas are used, each one

would be identified and the need explained in the weekly or biweekly construction reports to the FERC. The following material would be included in the reports:

- a. the location of each additional area by station number and reference to a previously filed alignment sheet, or updated alignment sheets showing the additional areas;
- b. identification of where the Commission's records contain evidence that the additional areas were previously surveyed; and
- c. a statement that landowner approval has been obtained and is available in Project files.

Prior written approval of the Director is required when the certificated construction right-of-way width would be expanded by more than 25 feet.

### ***3.4.2 Topsoil Segregation (FERC Plan Section IV.B., Modified)***

1. Unless the landowner or land management agency specifically approves otherwise, prevent the mixing of topsoil with subsoil by stripping topsoil from either the full work area or from the trench and subsoil storage area (ditch plus spoil side method) in:
  - native desert habitats (based on desert restoration techniques found in Section 2 of this CM&R Plan );
  - annually cultivated or rotated agricultural lands and pastures;
  - hayfields;
  - residential areas; and
  - other areas at the landowner's or land managing agency's request (FERC Plan Section IV.B.1, modified).
2. In residential areas topsoil replacement (i.e., importation of topsoil) is an acceptable alternative to topsoil segregation. (FERC Plan Section IV.B.2).
3. In agricultural fields, to maintain the integrity of the temporarily displaced topsoil horizon (depth to be determined before construction), topsoil will be stripped to its actual depth up to 2 feet and stockpiled at the edge of the right-of-way so that it can be replaced, as nearly as possible, in the topsoil's original position within the soil profile.
4. Where topsoil segregation is required, maintain separation of salvaged topsoil and subsoil throughout all construction activities.
5. Segregated topsoil may not be used for padding the pipe or backfilling the trench (FERC Plan Section IV.B.5).

### ***3.4.3 Drain Tiles (FERC Plan Section IV.C., Modified)***

This section does not apply because the Project does not cross land with drain tiles.

### **3.4.4 Irrigation (FERC Plan Section IV.D.)**

Maintain water flow in crop irrigation systems, unless shutoff is coordinated with affected parties.

### **3.4.5 Road Crossings and Access Points (FERC Plan Section IV.E., Modified)**

Maintain safe conditions at all road crossings in accordance with the road crossing. North Baja will not use crushed stone access pads in residential or active agricultural areas, so Part 2 does not apply.

### **3.4.6 Temporary Erosion Control (FERC Plan Section IV.F., Modified)**

North Baja does not propose to install temporary erosion controls. This is because of the level topography along most of the route and the stony soil where slopes are somewhat steeper along portions of the B-Line route east of Highway 78. In the Project area, rainfall amounts average less than 5 inches annually, but rain often occurs in intense cloudbursts that result in flash flooding, which in turn renders typical erosion controls (silt fence, hay bales, etc.) ineffective. Therefore, Part 1, regarding temporary slope breakers; Part 2, regarding sediment barriers; and Part 3, regarding mulch do not apply to this Project.

## **3.5 RESTORATION**

### **3.5.1 Cleanup (FERC Plan Section V.A., Modified)**

1. Commence cleanup operations immediately following backfill operations. Complete final grading, topsoil replacement, and installation of permanent erosion control structures within 20 days after backfilling the trench (10 days in residential areas). Weather compliance limitations are not applicable in this climate; therefore, part of this Part 1 does not apply.
2. Section 2 is not applicable because temporary erosion controls are not needed.
3. Rock excavated from the trench may be used to backfill the trench only to the top of the existing bedrock profile. Rock that is not returned to the trench should be considered construction debris, unless approved for use as mulch or for some other use on the construction work areas by the landowner or land managing agency.
4. Remove excess rock from at least the top 12 inches of soil in all actively cultivated or rotated cropland and pastures, hayfields, and residential areas, as well as other areas at the landowner's request. The size, density, and distribution of rock on the construction work area should be similar to adjacent areas not disturbed by construction. The landowner may approve other provisions in writing.
5. Grade the construction right-of-way to restore pre-construction contours.
6. Remove construction debris from all construction work areas unless the landowner or land managing agency approves otherwise, and the debris left behind will be in compliance with all applicable laws and regulations.

7. Section 7 does not apply because temporary erosion control measures are not applicable.

### 3.5.2 *Permanent Erosion Control Devices (FERC Plan Section V.B.)*

#### 1. Trench Breakers

- a. Trench breakers are intended to slow the flow of subsurface water along the trench. Trench breakers may be constructed of materials such as sand bags or polyurethane foam. Do not use topsoil in trench breakers.
- b. An engineer or similarly qualified professional shall determine the need for and spacing of trench breakers. Otherwise, trench breakers shall be installed at the same spacing as and upslope of permanent slope breakers.
- c. In agricultural fields and residential areas where slope breakers are not typically required, install trench breakers at the same spacing as if permanent slope breakers were required.
- d. At a minimum, install a trench breaker at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody or wetland and where needed to avoid draining a waterbody or wetland.

#### 2. Permanent Slope Breakers

- a. Permanent slope breakers are intended to reduce runoff velocity, divert water off the construction right-of-way, and prevent sediment deposition into sensitive resources. Permanent slope breakers may be constructed of materials such as soil, sand bags, or some functional equivalent.
- b. Construct and maintain permanent slope breakers in all areas, except cultivated areas and lawns, using spacing recommendations obtained from the local soil conservation authority or land managing agency.

In the absence of written recommendations, use the following spacing unless closer spacing is necessary to avoid excessive erosion on the construction right-of-way:

Slope (%)	Spacing (ft.)
5 – 15	300
>15 – 30	200
>30	100

- c. Construct slope breakers to divert surface flow to a stable area without causing water to pool or erode behind the breaker. In the absence of a stable area, construct appropriate energy-dissipating devices at the end of the breaker.
- d. Slope breakers may extend slightly (about 4 feet) beyond the edge of the construction right-of-way to effectively drain water off the disturbed area. Where slope breakers extend beyond

the edge of the construction right-of-way, they are subject to compliance with all applicable survey requirements.

### 3.5.3 *Soil Compaction Mitigation (FERC Plan Section V.C., Modified)*

1. Test topsoil and subsoil for compaction at regular intervals in agricultural and residential areas disturbed by construction activities. Conduct tests on the same soil type under similar moisture conditions in undisturbed areas to identify approximate preconstruction conditions. Use penetrometers or other appropriate devices to conduct tests.

**Sampling Procedure:** Compaction sampling will be carried out by staff along the right-of-way at 1-mile intervals in fine-textured soils where compaction may be a concern. At least three measurements inside the right-of-way and three measurements outside the right-of-way will be taken. Measurements will be taken in line perpendicular to the centerline. Three test points will be taken along the travel corridor on the working side of the right-of-way. This is a heavily traveled area immediately adjacent to the centerline trench and is the most likely candidate for severe compaction. One point will be sampled over the approximate center of the travel corridor and two other points 5 feet in either direction. Three test points will be taken at 5 feet, 10 feet, and 15 feet outside of the right-of-way limits on the working side of the right-of-way. Penetrometer readings will be taken at a depth of 3 inches, 6 inches, and 9 inches (where soil conditions allow).

If severe compaction exists along the right-of-way (see below, *Penetration Parameters*), additional testing will be conducted at 0.1-mile intervals in either direction following the above-described methods until the area where compaction is severe has been defined.

**Penetration Parameters:** Penetration resistance of soils ranges from 0 pounds per square inch (PSI) to 725 PSI. Plant roots can no longer penetrate the soil mass at densities above 725 PSI. Undisturbed resistance values for native soils range from 0 to 100 PSI for sandy or organic topsoils to 300 to 500 PSI for clayey subsoil. In comparing affected to unaffected sites, an increase in penetration resistance of 300 PSI, equivalent to over one-level increase in resistance category, is a reasonable gauge of compaction. Use of cone penetrometers may be impossible in extremely rocky or gravelly desert soils. If the equipment cannot easily be used to a depth of at least 3 inches because of obstruction from rocks, gravel, or plant roots, the assumption will be that there is sufficient coarse material in the soil to ameliorate compaction and that further testing or soil manipulation is not required.

2. Plow severely compacted agricultural areas with a paraplow or other deep tillage implement. In areas where topsoil has been segregated, plow the subsoil before replacing the segregated topsoil. Alternatively, make arrangements with the landowner to plant and plow under a "green manure" crop, such as alfalfa, to decrease soil bulk density and improve soil structure. If subsequent construction and cleanup activities result in further compaction, conduct additional tilling.
3. Perform appropriate soil compaction mitigation in severely compacted residential areas.

4. Compaction is normally a concern during pipeline construction. However, based on the soils analysis conducted by North Baja (see Resource Report 7) there is little potential for compaction in the coarse-textured soils of the desert areas. Construction of the A-Line did not result in any compaction problems in native desert habitats, and revegetation progress has been very good. Soils that are poorly, somewhat poorly, or very poorly drained have compaction potential, depending on soil texture. A query of the State Soil Geographic (STATSGO) database determined that for this pipeline route, including the IID Lateral, there are **no** soils in these categories. Therefore, based on the STATSGO information, there is little potential for soil compaction.

Soil compaction testing will not be conducted in desert habitats where compaction did not occur during the construction of the A-Line. Testing completed for the A-Line indicated no areas of compaction in native desert habitats. No additional testing is needed in the same soil types and in the same areas. Soil testing will be conducted in fine-textured soils along the IID Lateral in native desert habitats. Note that no such soils have been shown to exist in the STATSGO database, and no compaction potential has been identified for these areas. However, if fine-textured soil is encountered, as identified by the Environmental Inspector or the BLM, compaction testing will be conducted, using the compaction testing procedure identified in section 1. above.

**Soil Treatment:** Reservation of topsoil and imprinting practices will be relied upon except in cases of severe soil compaction caused by Project activities. Soil ripping will be applied when average penetrometer readings of compacted soils on the pipeline corridor are  $\geq 300$  PSI more than soils unaffected by compaction. Ripping will be carried out with an implement that has as small a space between tines that can be effectively passed through the soil. Depth of ripping will be 6 to 9 inches, or as specified by inspectors. Rocks and root masses may preclude ripping in some areas.

### ***3.5.4 Revegetation (FERC Plan Section V.D., Modified)***

1. Restoration methods for desert habitats are specified in Section 2, above. Where applicable in residential areas, North Baja will restore all turf, ornamental shrubs, and specialized landscaping in accordance with the landowner's request, or compensate the landowner. Restoration work must be performed by personnel familiar with local horticultural and turf establishment practices.
2. North Baja will not use soil modifiers or seeding; therefore Parts 2 and 3 do not apply.

## **3.6 OFF-ROAD VEHICLE CONTROL (FERC PLAN SECTION VI., MODIFIED)**

Where requested, North Baja will offer to install and maintain measures to discourage unauthorized vehicle access to the right-of-way. These may include signs or other barriers along the right-of-way. See also Section 2, above, and Appendix P, OHV Management Plan.

## 3.7 POST-CONSTRUCTION ACTIVITIES

### 3.7.1 *Monitoring and Maintenance (FERC Plan Section VII.A., Modified)*

1. Conduct follow-up inspections of all disturbed areas after the first and second growing seasons to determine the success of restoration.
2. North Baja has specified special restoration measures for desert habitats. See Section 2, above. Therefore, Part 2 of the FERC Plan Section VII.A. is modified, Part 4 is not applicable, and Part 6 is modified to recognize that full control of OHV use in the desert is not feasible. Restoration shall be considered successful in agricultural areas if crop yields are similar to adjacent undisturbed portions of the same field. Continue revegetation efforts in agricultural areas until revegetation is successful.
3. Monitor and correct problems with drainage and irrigation systems resulting from pipeline construction in active agricultural areas until restoration is successful.
4. (Not applicable—modified by Section 2, above).
5. To facilitate periodic corrosion and leak surveys, a corridor not exceeding 10 feet in width centered on the pipeline may be maintained annually.
6. In native desert habitats, restoration shall be considered successful if the right-of-way is similar in species composition to adjacent undisturbed lands.

Post-construction monitoring would be conducted annually in areas of native desert habitats disturbed by construction through 2012. Results of the monitoring will be provided in full reports to the FERC, BLM, CSLC, BOR, FWS, and CDFG. If, after 5 years of monitoring where rainfalls have been at least average for the area, revegetation of the construction work area in native desert habitats is determined to be unsuccessful, North Baja will consult with FERC, BLM, CSLC, BOR, FWS, and CDFG and develop a remedial restoration plan for desert revegetation. The remedial plan will be based upon assessments of the extent of the failure, the reasons for the failure, and conditions on the right-of-way, such as whether a viable seed source still exists in the soil. It is very unlikely that a remedial plan would include irrigation, which is impracticable in most settings along the pipeline. Options may include selective re-scarification of the surface, with or without supplemental seeding, or allowing more time for natural regeneration to occur. For each year that rainfall amounts have been less than 80 percent of average after 1 drought year subsequent to construction, an additional year shall be granted beyond the initial 5 years for native vegetation to establish before North Baja would be obliged to examine remedial measures.

7. Efforts to discourage unauthorized off-road vehicle use, in cooperation with the landowner, shall continue throughout the life of the Project. Maintain signs, gates, and vehicle trails as necessary.



### ***3.7.2 Reporting (FERC Plan Section VII.B., Modified)***

1. Part 1 of Section VII.B. is not applicable because no soil modifiers or seeding is necessary or proposed for the Project.
2. North Baja shall file with the FERC and the CSLC quarterly activity reports documenting problems, including those identified by the landowner, and corrective actions taken for at least 2 years following construction.

## **4.0 WETLANDS AND WATERBODIES**

### **4.1 APPLICABILITY (FERC PROCEDURES SECTION I., MODIFIED)**

- A. The intent of these Procedures is to minimize the extent and duration of Project-related disturbance of wetlands and waterbodies. North Baja has specified measures considered unnecessary, technically infeasible, or unsuitable due to local conditions, and has described any alternatives herein.

Once a Project is certificated, further changes can be approved. Any such changes from the measures in these Procedures (or the Applicant's approved CM&R Plan) will be approved by the Director of the Office of Energy Projects (Director), upon the Applicant's written request, if the Director agrees that an alternative measure:

1. provides equal or better environmental protection;
2. is necessary because a portion of these Procedures is infeasible or unworkable based on Project-specific conditions; or
3. is specifically required in writing by another Federal, State, or Native American land management agency for the portion of the Project on its land or under its jurisdiction.

Project-related impacts on non-wetland areas are addressed in the staff's Upland Erosion Control, Revegetation, and Maintenance Plan (Plan).

B. Definitions

1. "Waterbody" includes any natural or artificial stream, river, or drainage with perceptible flow at the time of crossing, and other permanent waterbodies such as ponds and lakes:
  - a. "minor waterbody" includes all waterbodies less than or equal to 10 feet wide at the water's edge at the time of crossing;
  - b. "intermediate waterbody" includes all waterbodies greater than 10 feet wide but less than or equal to 100 feet wide at the water's edge at the time of crossing;
  - c. "major waterbody" includes all waterbodies greater than 100 feet wide at the water's edge at the time of crossing.
2. "Wetland" includes any area that is not in actively cultivated or rotated cropland and that satisfies the requirements of the current Federal methodology for identifying and delineating wetlands.

## **4.2 PRECONSTRUCTION FILING (FERC PROCEDURES SECTION II, MODIFIED)**

- A. North Baja shall file with the Secretary before construction the hydrostatic testing information and an updated wetland delineation report, if needed. North Baja will not use underwater blasting on the Project. Trenching will be used in a waterbody only to cross Rannells Drain, which is covered in Section 4.5.2, Paragraph 4, of this CM&R Plan.
- B. North Baja shall file the following site-specific construction plans with the FERC for review and written approval by the Director of OEP before construction.
  - 1. Part 1 does not apply because as no extra workspaces are planned within 50 feet of a waterbody.
  - 2. Part 2 does not apply because there are no major waterway crossings except as covered in 4, below.
  - 3. Part 3 does not apply because the construction right-of-way in the only wetlands crossed by trenching is covered in Section 4.6, below.
  - 4. Horizontal directional drill plans for “crossing” the Colorado River, the AAC, and the East Highline Canal.

## **4.3 ENVIRONMENTAL INSPECTORS (FERC PROCEDURES SECTION III, MODIFIED)**

- A. At least two Environmental Inspectors having knowledge of the wetland and waterbody conditions in the Project area are required for each construction spread. The number and experience of Environmental Inspectors assigned to each construction spread should be appropriate for the length of the construction spread and the number/significance of resources affected.
- B. The Environmental Inspector's responsibilities are outlined in Section 3.2.2, above.

## **4.4 PRECONSTRUCTION PLANNING**

### ***4.4.1 Stormwater Pollution Prevention Plan (FERC Procedures Section IV.A., Modified)***

- A. A copy of the SWPPPs that would be prepared in accordance with the requirements of the Arizona Department of Environmental Quality, Division of Water Quality and the California Regional Water Quality Control Board, Colorado River Basin Region must be available in the field on each construction spread. The SWPPPs shall contain Spill Prevention and Response Procedures that meet the requirements of applicable agencies.

1. North Baja and its contractors will structure their operations in a manner that reduces the risk of spills or the accidental exposure of fuels or hazardous materials to waterbodies or wetlands.
    - a. all employees handling fuels and other hazardous materials are properly trained;
    - b. all equipment is in good operating order and inspected on a regular basis;
    - c. fuel trucks transporting fuel to on-site equipment travel only on approved access roads;
    - d. all equipment is parked overnight and/or fueled at least 100 feet from a waterbody or in an upland area, at least 100 feet from a wetland boundary, and at least 200 feet from any private, municipal or community water well. These activities can occur closer only if the Environmental Inspector finds, in advance, no reasonable alternative and the Project sponsor and its contractors have taken appropriate steps (including secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill;
    - e. hazardous materials, including chemicals, fuels, and lubricating oils, are not stored within 200 feet of a wetland, 200 feet from private wells, and 400 feet from municipal water supply wells, unless the location is designated for such use by an appropriate governmental authority. This applies to storage of these materials and does not apply to normal operation or use of equipment in these areas; and
    - f. concrete coating activities are not performed within 100 feet of a wetland or waterbody boundary, unless the location is an existing industrial site designated for such use.
  2. North Baja and its contractors will structure their operations in a manner that provides for the prompt and effective cleanup of spills of fuel and other hazardous materials. North Baja will:
    - a. ensure that each construction crew (including cleanup crews) has on hand sufficient supplies of absorbent and barrier materials to allow the rapid containment and recovery of spilled materials and knows the procedure for reporting spills;
    - b. ensure that each construction crew has on hand sufficient tools and material to stop leaks;
    - c. know the contact names and telephone numbers for all local, State, and Federal agencies (including, if necessary, the U. S. Coast Guard and the National Response Center) that must be notified of a spill; and
    - d. follow the requirements of those agencies in cleaning up the spill, in excavating and disposing of soils or other materials contaminated by a spill, and in collecting and disposing of waste generated during spill cleanup.
- B. North Baja shall coordinate with the appropriate local, State, and Federal agencies.

## 4.5 WATERBODY CROSSINGS

### 4.5.1 *Notification Procedures and Permits (FERC Procedures Section V.A., Modified)*

1. North Baja will apply to the U.S. Army Corps of Engineers (COE) for the appropriate wetland and waterbody permits required for the proposed construction activities.
2. Part 2 does not apply because there are no potable surface water supply intakes within 3 miles downstream of the proposed crossing.
3. North Baja will apply for State-issued waterbody crossing permits and obtain a Section 401 Water Quality Certification.

4. Notify appropriate State authorities at least 48 hours before trenching within the waterbody, or as specified in State permits.

#### **4.5.2 Installation (*FERC Procedures Section V.B., Modified*)**

1. Time windows for construction do not apply, since fisheries are not affected. North Baja will cross the Colorado River, the AAC (three crossings) and the East Highline Canal using the horizontal directional drill method, and no instream work will occur. The other waterbodies crossed by the proposed Project (with the exception of Rannells Drain) are canals, drainage ditches, or streams (Alamo River) that will be crossed within county or private roads using existing culverts and road fill or bored beneath the canal structure. Rannells Drain, which is not a classified fishery, will be the only waterbody crossed using the open-cut method.
2. Extra Work Areas
  - a. Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from water's edge, except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land.
  - b. North Baja will file with the Secretary for review and written approval by the Director, a site-specific construction plan for each extra work area with a less than 50 foot setback from the water's edge, (except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land) and a site-specific explanation of the conditions that will not permit a 50-foot setback.
  - c. Limit clearing of vegetation between extra work areas and the edge of the waterbody to the certificated construction right-of-way.
  - d. Limit the size of extra work areas to the minimum needed to construct the waterbody crossing.
3. General Crossing Procedures
  - a. Comply with the Section 404 permit and Section 401 Water Quality Certification in addition to terms and conditions of other applicable permits.
  - b. Construct crossings as close to perpendicular to the axis of the waterbody channel as engineering and routing conditions permit.
  - c. If the pipeline parallels a waterbody, attempt to maintain at least 15 feet of undisturbed vegetation between the waterbody (and any adjacent wetland) and the construction right-of-way.
  - d. Part d does not apply because the waterways crossed do not meander or have multiple channels.
  - e. Maintain adequate flow rates to protect aquatic life, and prevent the interruption of existing downstream uses.

- f. Waterbody buffers (extra work area setbacks, refueling restrictions, etc.) must be clearly marked in the field with signs and/or highly visible flagging until construction-related ground disturbing activities are complete.
4. Spoil Pile Placement and Control
  - a. All spoil must be placed in the construction right-of-way at least 10 feet from the water's edge or in additional extra work areas.
  - b. Use sediment barriers to prevent the flow of spoil into any waterbody.
5. Part 5 does not apply because no equipment bridges are proposed for the Project.
6. Part 6 does not apply because no dry-ditch crossing methods are proposed for the Project.
7. Part 7 does not apply because no minor waterbody crossings are proposed for the Project.
8. Crossings of Intermediate Waterbodies (applies only to the open-cut crossing of Rannells Drain)
  - a. Attempt to complete trenching and backfill work within the waterbody (not including bank grading) within 72 hours, unless site-specific conditions make completion within 72 hours infeasible.
  - b. Limit use of equipment operating in the waterbody to that needed to construct the crossing.
9. Part 9 does not apply because no major waterbody crossings are proposed for the Project.
10. Temporary Erosion and Sediment Control (applies only to Rannells Drain Crossing)

North Baja will install sediment barriers immediately after disturbance of Rannells Drain or the adjacent upland. Sediment barriers must be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Temporary erosion and sediment control measures are addressed in more detail in the Plan; however, the following specific measures must be implemented at stream crossings:

- a. install sediment barriers across the entire construction right-of-way at all waterbody crossings, where necessary to prevent the flow of sediments into the waterbody. In the travel lane, these may consist of removable sediment barriers or driveable berms. Removable sediment barriers can be removed during the construction day, but must be re-installed after construction has stopped for the day and/or when heavy precipitation is imminent;
- b. where waterbodies are adjacent to the construction right-of-way, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil and sediment within the construction right-of-way; and

- c. use trench plugs at all waterbody crossings, as necessary, to prevent diversion of water into upland portions of the pipeline trench and to keep any accumulated trench water out of the waterbody.

#### 11. Trench Dewatering.

Dewater the trench (either on or off the construction right-of-way) in a manner that does not cause erosion and does not result in heavily silt-laden water flowing into any waterbody. Remove the dewatering structures as soon as possible after the completion of dewatering activities.

### ***4.5.3 Restoration (FERC Procedures Section V.C., Modified)***

1. Part 1 does not apply because there are no cold-water fisheries crossed by the Project.
2. For open-cut crossings, stabilize waterbody banks and install temporary sediment barriers within 24 hours of completing instream construction activities. There are no dry-ditch crossings for the Project.
3. Return all waterbody banks to preconstruction contours or to a stable angle of repose as approved by the Environmental Inspector.
4. Part 4 does not apply because riprap will not be used on the Project.
5. Part 5 does not apply because riprap will not be used on the Project.
6. Part 6 does not apply because the Project will not disturb any riparian areas.
7. Part 7 is covered in Section 3.5.2, above, and will apply to Rannell's Drain crossing only.
8. Part 8 does not apply because there are no perennial or intermittent streams crossed by the Project.

### ***4.5.4 Post-Construction Maintenance (FERC Procedures Section V.D., Modified)***

1. Vegetation maintenance adjacent to waterbodies or in dry washes will be limited to that needed to facilitate periodic pipeline corrosion/leak surveys. This part is modified to reflect that the Project does not impact any riparian areas and includes dry wash crossings not covered in the Procedures.
2. No herbicides or pesticides will be used in or within 100 feet of a waterbody except as specified by the appropriate land management or State agency.

## 4.6 WETLAND CROSSINGS (FERC PROCEDURES SECTION VI, MODIFIED)

### 4.6.1 General (*FERC Procedures Section VI.A., Modified*)

1. North Baja has completed wetland delineations along the North Baja Project route. Eighteen wetlands were identified with a total crossing length of 14,493 feet. Construction impact on six of the wetlands will be avoided by the directional drills of the Colorado River (two wetlands), the AAC (two wetlands), and the East Highline Canal (two wetlands). Of the remaining twelve wetlands, three will be avoided by building in the roadway (IID Lateral at the Alamo River, Acacia Lateral Canal, and Alder Lateral Canal). The other nine wetlands, all sodic seasonal wetlands with non-native tamarisk as the dominant vegetation, will be trenched, for a total crossing length of 13,660 feet.
2. North Baja routed its pipeline to avoid wetlands to the maximum extent possible. Where the B-Line crosses wetlands, it does so only 25 feet from the existing A-Line.
3. The B-Line width through the sodic seasonal wetlands in the wetlands covered by the FERC Procedures will be 105 feet. The degraded nature of the wetland and the extensive and rapidly invading presence of tamarisk does not warrant right-of-way narrowing in this area. Following post-construction of the A-line, representative vegetative sampling plot locations were established to monitor the revegetation of impacted areas. These surveys were conducted twice per year for the first 2 years and continue to be conducted annually. North Baja has filed annual reports with FERC, CSLC, BLM, and CDFG as agreed in the CM&R Plan for the A-Line construction. These reports document revegetation of native and nonnative species. Representative plot locations established within these monotypic tamarisk wetlands have shown rapid re-establishment of tamarisk with a range of cover between 5 to 40 percent, and limited species diversity of shrubs. Colonization of these wetlands consists almost entirely of tamarisk with several individuals of salt bush (*Atriplex lentiformes*). These wetland areas contain very high concentrations of salts, which precludes colonization of most native vegetation, with the exception of salt bush and iodine bush.
4. Wetland boundaries and buffers will be clearly marked in the field until construction-related ground-disturbing activities are complete.
5. Part 5 does not apply because no water crossing is located within a wetland.
6. Part 6 does not apply because no aboveground facilities will be located in wetlands.



#### 4.6.2 Installation (FERC Plan Section VI.B., Modified)

##### 1. Extra Work Areas and Access Roads

- a. North Baja will locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from wetland boundaries, except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land. Exceptions are listed in Table E-2, below.
- b. Table E-2, below, lists needed extra workspaces in wetlands and includes a brief explanation of the need for each workspace. North Baja does not believe additional drawings are needed.

Table E-2 Extra Workspaces Needed in Wetlands						
Approximate Milepost	County, State	Wetland Identifier	Need for EWS	Orientation to ROW	Disturbance Acres	
					Total	New
Arrowhead Extension						
No Wetlands						
B-Line						
28.2	Imperial, CA	N68-WE-29	Horizontal Bore, Hwy 78	East	0.1	0.0
28.3	Imperial, CA	N69-WE-29	Horizontal Bore, Hwy 78	East	0.2	0.0
28.5	Imperial, CA	N70-WE-29	Offset EWS to avoid powerline	West	0.5	0.5
31.9	Imperial, CA	CWE-5	Offset EWS to avoid steep sideslopes and powerline	East	1.5	0.0
32.1	Imperial, CA	CWE-5	Offset EWS to avoid steep sideslopes and powerline	West	0.3	0.3
IID Lateral						
27.5	Imperial, CA	East Highline Canal – East	Set up area for HDD Pullback	South	0.1	0.1
			Total Acres		2.7	0.9

- c. North Baja will limit clearing of vegetation between extra work areas and the edge of the wetland to the certificated construction right-of-way.
- d. The construction right-of-way may be used for access when the wetland soil is firm enough to avoid rutting or the construction right-of-way has been appropriately stabilized to avoid rutting (e.g., with timber riprap, prefabricated equipment mats, or terra mats). In wetlands that cannot be appropriately stabilized, all construction equipment other than that needed to install the wetland crossing shall use access roads located in upland areas. Where access roads in upland areas do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way.
- e. The only access road that crosses a wetland is an existing access road.

##### 2. Crossing Procedures

- a. Comply with the Section 404 permit and Section 401 Water Quality Certification in addition to terms and conditions of other applicable permits.

- b. Assemble the pipeline in an upland area unless the wetland is dry enough to adequately support skids and pipe.
  - c. Use "push-pull" or "float" techniques to place the pipe in the trench where water and other site conditions allow.
  - d. Minimize the length of time that topsoil is segregated and the trench is open.
  - e. Limit construction equipment operating in wetland areas to that needed to clear the right-of-way, separate and stockpile topsoil, dig the trench, fabricate and install the pipeline, backfill the trench, and restore the right-of-way.
  - f. Cut vegetation just above ground level, leaving existing root systems in place, and remove it from the wetland for disposal if the wetland is dominated by native species.
  - g. All tamarisk trees and shrubs will be removed, including stumps and root systems, and either burned or disposed using covered dump trucks to approved public facilities.
  - h. Segregate the top 1 foot of topsoil from the area disturbed by trenching except in areas where standing water or saturated soils are present. After backfilling is complete, restore the segregated topsoil to its original location.
  - i. Do not use rock, soil imported from outside the wetland, tree stumps, or brush riprap to stabilize the right-of-way.
  - j. If standing water or saturated soils are present, use low-ground-weight construction equipment, or operate normal equipment on timber riprap, prefabricated equipment mats or terra mats.
  - k. Part k does not apply because timbers will not be used on the Project.
  - l. Part l does not apply because timbers will not be used on the Project.
  - m. Remove all Project-related material used to support equipment on the construction right-of-way upon completion of construction.
3. Temporary Sediment Control
- Wetland crossings on the Project are constructed in flat terrain. No sediment controls are needed and Part 3 does not apply.
4. Trench Dewatering
- a. Dewater the trench (either on or off the construction right-of-way) in a manner that does not cause erosion and does not result in heavily silt-laden water flowing into any wetland. Adhere to all applicable permits, including water quality sampling and monitoring as required. Remove the dewatering structures as soon as possible after the completion of dewatering activities.

#### **4.6.3 Restoration (FERC Plan Section VI.C., Modified)**

1. Where the pipeline trench may drain a wetland, construct trench breakers and/or seal the trench bottom as necessary to maintain the original wetland hydrology.
2. Wetland crossings on the Project are constructed in flat terrain. No trench breakers, slope breakers or sediment barriers are needed and Part 2 does not apply.
3. Do not use fertilizer, lime, or mulch unless required in writing by the appropriate land management or State agency.
4. Since the only wetlands that are crossed by trenching are sodic seasonal wetlands with monotypic tamarisk vegetation within and adjacent to the existing and proposed right-of-way, North Baja does not propose any restoration beyond that specified in Section 2, above. During construction of the A-Line, the manager of the Cibola NWR requested that sheepsfooting not be used, and North Baja is not proposing to use sheepsfooting in these wetlands after B-Line construction. Therefore, parts 4, 5, and 6 do not apply. No temporary sediment barriers are necessary or proposed; therefore, Part 7 does not apply.

#### **4.6.4 Post-Construction Maintenance (FERC Plan Section VI.D., Modified)**

1. Do not conduct vegetation maintenance over the full width of the permanent right-of-way in wetlands. However, to facilitate periodic pipeline corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be maintained in a herbaceous state. In addition, trees within 15 feet of the pipeline that are greater than 15 feet in height may be selectively cut and removed from the right-of-way.
2. Do not use herbicides or pesticides in or within 100 feet of a wetland, except as allowed by the appropriate land management agency or State agency.
3. Monitoring and success criteria are specified in Section 2, above. Therefore, parts 3 and 4 do not apply.

### **4.7 HYDROSTATIC TESTING**

#### **4.7.1 Notification Procedures and Permits (FERC Plan Section VII.A.)**

1. Apply for State-issued withdrawal permits, as required.
2. Apply for National Pollutant Discharge Elimination System (NPDES) or State-issued discharge permits, as required.
3. Notify appropriate State agencies of intent to use specific sources at least 48 hours before testing activities unless they waive this requirement in writing.

**4.7.2 General (FERC Plan Section VII.B.)**

1. North Baja will perform 100 percent radiographic inspection of all pipeline section welds or hydrotest the pipeline sections, before installation under waterbodies or wetlands.
2. If pumps used for hydrostatic testing are within 100 feet of any waterbody or wetlands, address the operation and refueling of these pumps in the SPCC Plan.
3. North Baja will file with the Secretary before construction a list identifying the location of all waterbodies proposed for use as a hydrostatic test water source or discharge location.

**4.7.3 Intake Source and Rate (FERC Plan Section VII.C.)**

1. Screen the intake hose to prevent entrainment of fish.
2. North Baja will not use State-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate Federal, State, and/or local permitting agencies grant written permission.
3. Maintain adequate flow rates to protect aquatic life, provide for all waterbody uses, and provide for downstream withdrawals of water by existing users.
4. Hydrostatic test manifolds will be located outside wetlands and riparian areas to the maximum extent practicable.

**4.7.4 Discharge Location, Method, and Rate (FERC Plan Section VII.D., Modified)**

1. Regulate discharge rate, use energy dissipation device(s), and install sediment barriers, as necessary, to prevent erosion, streambed scour, suspension of sediments, or excessive streamflow. Adhere to all applicable permits, including water quality sampling and monitoring as required.
2. Do not discharge into State-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate Federal, State, and local permitting agencies grant written permission.